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10/772,740	02/05/2004	Yonhua Tzeng	220101-1011	5635

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HAVERSTOCK & OWENS LLP
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EXAMINER

STOUFFER, KELLY M

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1792

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

DETAILED ACTION

The amendments filed 17 June 2008 will not be entered after final as the new provision in claim 26 requiring a "seedless substrate" raises new issues that require further consideration and search. It is also noted that a "seedless substrate" may lack support in the original disclosure, along with being indefinite, but further consideration would be needed. Therefore, arguments pertaining to this limitation have been fully considered, but will not be answered here, as the amendment is not entered.

Applicant's arguments filed 17 June 2008 have been fully considered but they are not persuasive. The applicant argues that there is no motivation to combine Shinya (or SEL as indicated below) and Pryor because Pryor includes hydrogen in the mixture while Shinya avoids using hydrogen, hence there is no reasonable expectation of success. However, there is a reasonable expectation of success that the precursor mixtures of Pryor will achieve the result in Shinya without hydrogen, as Shinya teaches that one may eliminate hydrogen from the reaction mixture by using alcohols (such as those suggested by Pryor) as a reactant gas (see Means for Solving the Problem section of Shinya). Shinya teaches that one of ordinary skill in the art would want to remove hydrogen from the mixture because hydrogen is expensive, explosive, causes exfoliation, and does not compound a diamond film properly (See the Technical Problem section of Shinya). Therefore, it is obvious to utilize a mixed methanol / ethanol liquid precursor mixture in the process of Shinya as taught by Pryor with the

reasonable expectation of success and obtaining similar results (i.e., successfully depositing a diamond film on a substrate by using liquid alcohol-based precursors **without a carrier gas, specifically hydrogen**, as desired by Shinya) when compared to utilizing either methanol or ethanol precursors individually. Pryor is simply used by the examiner to show that using a mixed methanol/ethanol solution instead of just methanol is beneficial to the process and will obtain similar results. The examiner does not suggest that the entire precursor mixture of Pryor that includes hydrogen is substituted into Shinya and vice versa. It is also obvious that one of ordinary skill in the art would want to avoid using hydrogen as taught by Shinya for the reasons listed above. The claim would have been obvious because the substitution of one known element (methanol) for another (methanol/ethanol) would have yielded predictable results to one of ordinary skill in the art at the time of the invention. See *KSR International Co. V. Teleflex Inc.*, 550 U.S.--, 82 USPQ2d 1385 (2007). Further, it is noted by the examiner that one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986). As SEL clearly shows a reasonable expectation for success in using a high percentage of alcohol to make diamond, further evidence would be needed from the applicant to prove the allegations of inoperability in the instant arguments.

In response to the applicants other arguments against the other references individually, one cannot show nonobviousness by attacking references individually

where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986). As was discussed in the previous action, combining Shinya with Pryor and other references cures these deficiencies noted in the instant arguments. "Substantially free of water" is taught by SEL as the liquid precursor is 100% alcohol (paragraph [0010]), and none of the examples of diamond deposition taught by SEL include any water in the liquid precursor material (paragraphs [0013] – [0020]). To show criticality of the claimed pressure ranges as the applicant argues, the claim must be commensurate in scope with evidence showing its importance. As for supplying liquid precursor without interrupting formation of diamond, Versteeg does indeed teach this limitation as the applicant cites. As for the limitation of "without seeding" a preamble is generally not accorded any patentable weight where the body of the claim does not depend on the preamble for completeness but, instead, the process steps or structural limitations are able to stand alone – which the process steps of claim 26 certainly can. This limitation fits this description as far as it is described in the specification. See *In re Hirao*, 535 F.2d 67, 190 USPQ 15 (CCPA 1976) and *Kropa v. Robie*, 187 F.2d 150, 152, 88 USPQ 478, 481 (CCPA 1951).

In response to applicant's argument that neither Shinya or Pryor or the other combinations relay the benefits the inventor found by using the precursor mixture, the fact that applicant has recognized another advantage which would flow naturally from following the suggestion of the prior art cannot be the basis for patentability when the

differences would otherwise be obvious. See *Ex parte Obiaya*, 227 USPQ 58, 60 (Bd. Pat. App. & Inter. 1985).

In response to the applicant's arguments that the pressure ranges are nonobvious, further evidence is needed to show unexpected results commensurate in scope with the claims to overcome this rejection. It would have been obvious to a person having ordinary skill in the art at the time the invention was made to use the claimed pressure ranges, since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. *In re Aller*, 220 F.2d 454, 105 USPQ 223 (CCPA 1955).

Therefore, for at least these reasons, the rejections of the final office action are maintained.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to KELLY STOUFFER whose telephone number is (571)272-2668. The examiner can normally be reached on Monday - Thursday 7:00-5:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Timothy Meeks can be reached on (571) 272-1423. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 1792

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Kelly Stouffer
Examiner
Art Unit 1792

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/Timothy H Meeks/
Supervisory Patent Examiner, Art Unit 1792